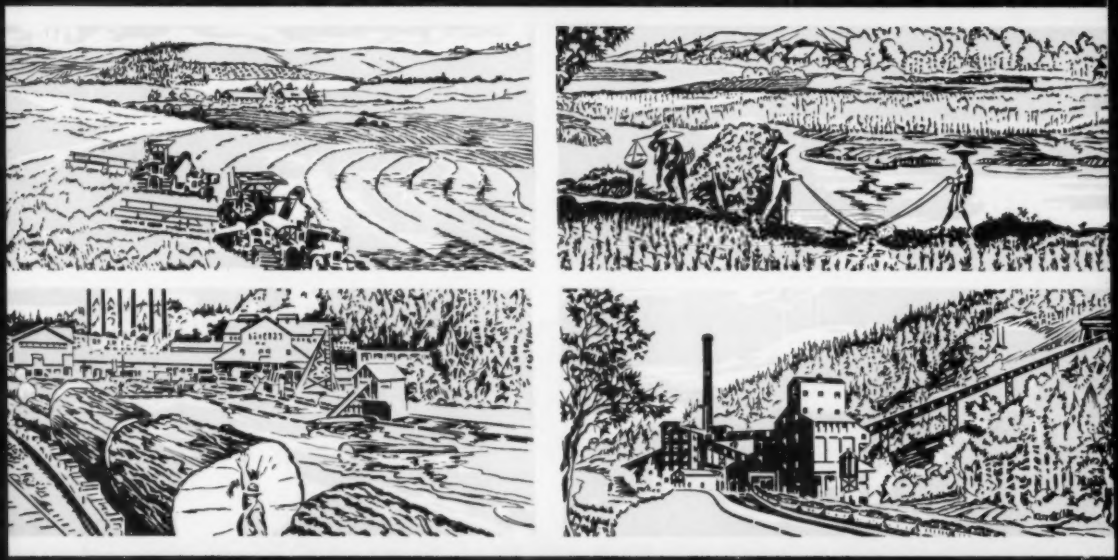
JOURNAL of GEOGRAPHY

for Teachers of
ELEMENTARY,
HIGH SCHOOL
and COLLEGE
GEOGRAPHY

Volume LV
March 1956
Number 3



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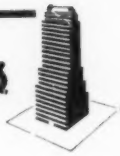

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Mrs. Tillman is the daughter of the late Professor Ray H. Whitbeck. She is an enthusiastic observer of geographical landscapes as seen from the air. Her study during recent years has taken her over a large amount of territory and during the summer she and her son will make a trip to Peru.

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Dr. Cutshall is Professor of Geography at the University of Illinois at Chicago. In 1950-51 he held a Fulbright research grant for study in the Philippines. Other articles on the Philippines contributed by Dr. Cutshall appeared in the JOURNAL in May, 1954 and October, 1955.

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PRINTED IN THE U.S.A.

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The JOURNAL is the official organ of the National Council of Geography Teachers and is sent to all members. The annual dues, $4.00, are payable to the JOURNAL OF GEOGRAPHY. Extra postage rates for copies sent to foreign countries should be added to the membership dues. Make all remittances payable to the JOURNAL OF GEOGRAPHY, in postal or express money orders or bank drafts.

Send manuscript and books for notice or review to the Editor.
Send orders for back numbers to JOURNAL OF GEOGRAPHY.

Published monthly except June, July and August
PUBLICATION OFFICES: 450-454 AHNAIP STREET, MENASHA, WISCONSIN
Business Correspondence, Membership Dues, and Subscriptions may be sent to Publication office or to

A. J. NYSTROM AND COMPANY
PUBLISHERS, JOURNAL OF GEOGRAPHY
3333 ELSTON AVENUE, CHICAGO 18

Entered as second-class matter January 15, 1919 at the post office of Menasha, Wisconsin under the Act of March 3, 1879.

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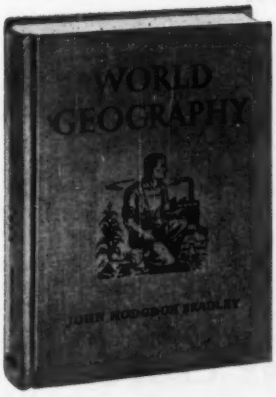

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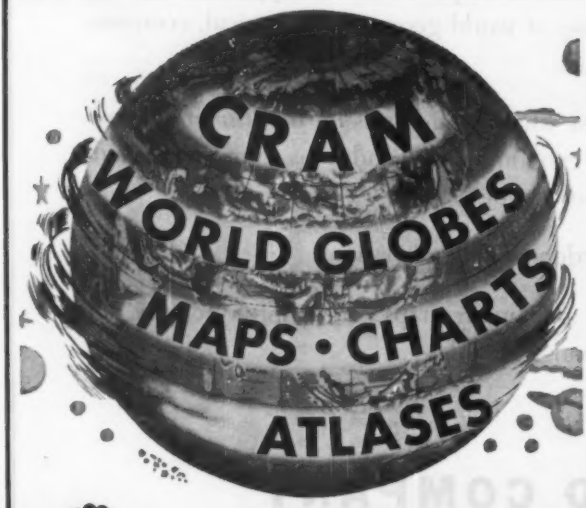

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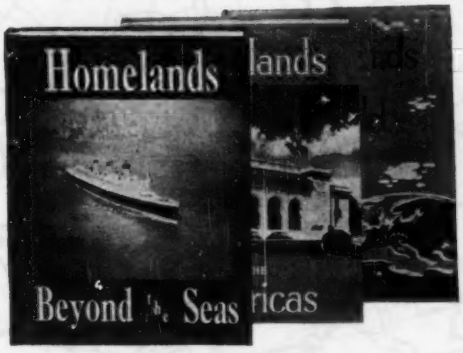

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VOLUME LV MARCH 1956 NUMBER 3

SLEEPY ORINOCO VALLEY COMES TO LIFE*

C. LANGDON WHITE
Stanford University

To one who has traveled and studied widely in Latin America and has observed boom areas on the one hand and backward ones on the other, with all gradations in between, the new development in the area south of the lower Orinoco (*Fig.* 1) is amazing, thrilling, and significant. Here is as fine an example as could be found anywhere in the world of an area, for centuries an economic vacuum, that is coming to life and is throbbing with activity.

The Guiana Highlands and the Llanos, two of Venezuela's four regions (*Fig.* 1), have long been outside the nation's effective area, that is, they are of little significance demographically, politically, and even economically. Much of the Guiana Highland Region has not even been explored, whereas the Llanos has fewer people and cattle today than during the era of Simón Bolívar. Inaccessibility, poor transportation and communication, infertile soils, high humidity, high temperatures, alternating seasons of flood and intense drought (in the Llanos), dense jungle, rough terrain (in the Guiana Highland), insect pests by the billions, and tropical diseases all have conspired to hold the two regions back economically.

Most of Venezuela's 5 million people dwell in the Venezuelan Highlands, a branch of the Andes (*Fig.* 1). What is it then that after centuries of inactivity is bringing this interior area to life? It is iron ore primarily, tho considerable petroleum also is being won north of the Orinoco (*Fig.* 1).

What impressed this writer is that the region south of the Orinoco and near the Caroní was first entered by white men as early as the 1550's but that nothing much happened. Iron ore was first discovered in the area under discussion in 1926 when a native

* The field work on which this article is based was made possible by a grant from the Committee for Research in Social Science, Stanford University.

prospector stood atop a mountain known as El Florero and shouted to the world that he had found a large, rich, new source of iron ore. But his words were lost in the green jungles and his discovery for several years was an economic dud. Besides at that time, the world had plenty of iron ore well located with respect to the great manufacturers of iron and steel. And since Venezuela itself had no

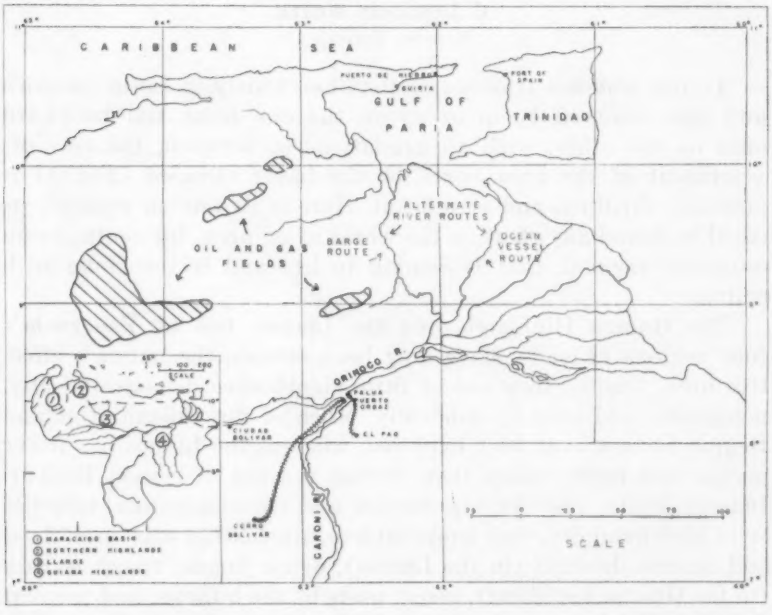

Fig. 1. Venezuela's iron ore picture at a glance. Here is one of the largest and most accessible reserves of high-grade iron ore in the world and one of man's outstanding engineering feats of modern times. The opening up of this iron ore region has set in motion two great streams of intercontinental trade that is benefiting both Venezuela and the United States.

metallurgical industry, there was no domestic market for iron ore. At that time the United States industry rested on the solid foundation of the Lake Superior ranges, the greatest iron ore region the world has yet known.

The United States at the Crossroads: Seek Foreign Ore, Develop Domestic Taconite, or Do Both

But the United States had been consuming enormous quantities of iron ore during the two world war periods. At the conclusion of

World War II an outstanding steel executive announced that the war just ended was the last that would be fought from the Mesabi Range. What he meant was that in two world wars, we had drawn so heavily on the Lake Superior Region and particularly the Mesabi Range that the bottom of the cup could be seen so far as high-grade ore was concerned. Accordingly the United States had to get control of reserves outside its boundaries if it were to continue as the world's leading fabricator of iron and steel (the capacity of this country is now in excess of 125,000,000 tons per annum).

Two possibilities were available to the industry and both were accepted. The first was to develop the low grade taconite ores (about one-third iron and two-thirds waste) which abound in enormous reserves in the Upper Lake Region. But to make high-grade iron ore from taconite requires large expensive plants and the process is costly, since only one ton of good usable ore is recovered from four tons of the powdered material. None-the-less hundreds of millions of dollars have been invested and some taconite is already being shipped down the lakes. By utilizing these manufactured ores, the life of our own Lake Superior deposits is being extended many years and our nation is assured a continuous production of this invaluable resource, even in time of war when foreign sources in all probability would be cut off.

The second alternative was to seek iron ore abroad. Geologists and mining engineers accordingly began to comb the world from the Arctic to the tropical jungles and from the dizzy heights of mountains to the dry deserts. The economic factor always had to be considered: many deposits were disappointing because the reserves were too small, others because the quality of the ore was too low. Even when both of these conditions were satisfactory, the deposits had to be accessible if they were to be developed. Thus the great distances over which some ores would have had to move and the high costs that would have been involved were sufficient reason to postpone consideration of some of the deposits. After worldwide searches two areas seemed especially capable of economical development—Labrador-Quebec and Venezuela. Both are today pouring millions of tons of iron ore into the United States.

VENEZUELA'S NEW EL DORADO: IRON ORE

In a huge area of potential iron ore, two American companies, Bethlehem Steel Corporation and the United States Steel Corpora-

tion, the former operating on the east side of the Caroní, the latter on the west side (*Fig.* 1), are today mining millions of tons of very high-grade iron ore (63 to 68 per cent metallic iron), shipping it to the United States and feeding it into the furnaces at Sparrows Point, Maryland; Morrisville, Pennsylvania; and Birmingham, Alabama.

To develop iron ore in a jungle in the interior of a country involves problems of many kinds. One engineer remarked: "Conditions were seldom as anticipated."

This was virgin country and jungle. To make money in such a land requires huge expenditures. The two companies have already spent more than $250 million. No small company would dare come into such an area expecting to be successful. Among the things that had to be done were to install expensive mining machinery, build railroads, highways, loading equipment, docks, whole new towns, complete with residences, (*Fig.* 2), schools, hospitals, and other civic structures. Water and sewage systems had to be installed and diseases kept under control. Food had to be brought in from the outside, much of it imported. Office and warehouse space, a radio communication system, and air ports had to be built. One of the biggest achievements was dredging the Orinoco River for a distance of 178 miles to a minimum depth of 26 feet (low river stage). The scope of this project may be appreciated by noting that 33 million cubic yards of sand, gravel, clay, mud, and in one section rock, had to be removed. Actually the dredged area was a 32-mile stretch but it was spread over the full 178 miles from Puerto Ordaz to the Orinoco's mouth. So many facets were involved that it has been said that finding ore was really the beginning of a chain reaction rather than the end of the trail.

Fortunately both mines, El Pao and Cerro Bolivar (*Fig.* 3) are low-cost producers. The ore is practically free from overburden. At Cerro Bolivar the ore is said to be an outer shell of the mountain. Mining is by power shovel at both mines. The ore is delivered by truck to railroads that carry it to ports on the Orinoco —Palua (Bethlehem) and Puerto Ordaz (United States Steel). At Palua the ore is dumped into barges or river boats (depending upon the season of the year and the stage of water in the river) which deliver it to Puerto de Hierro (*Fig.* 4) where huge ships load it for delivery to Sparrows Point. At Puerto Ordaz small ocean-going vessels are loaded with ore which is delivered direct to the

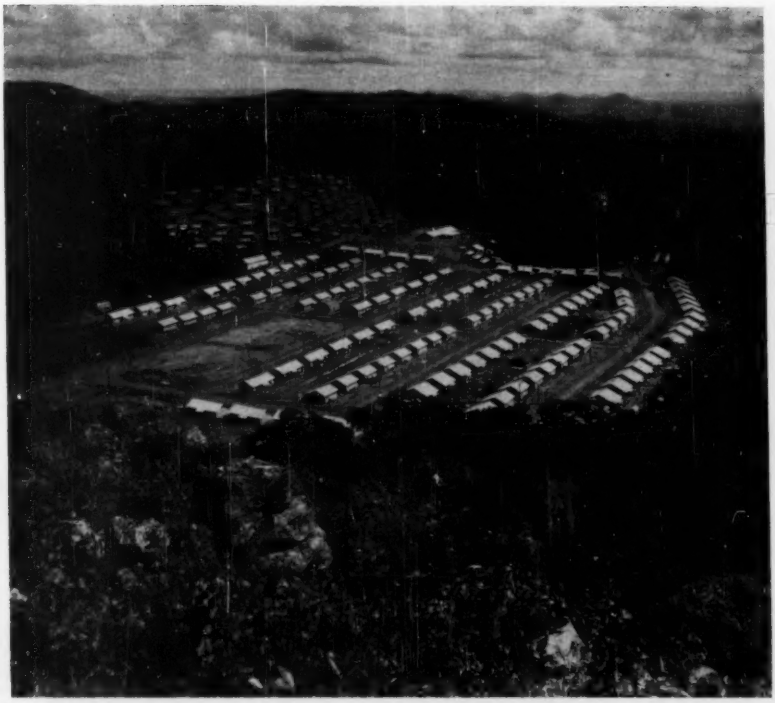

FIG. 2. Bethlehem Steel Corporation's modern village of El Pao, carved out of the jungle, has a superb setting. The houses of both steel companies are carefully adjusted to the natural environment of the region—heat, rainfall, insects, etc. Courtesy of Bethlehem Steel Corporation.

blast furnaces at Morrisville or to the port of Mobile for delivery to Birmingham. (*Fig.* 5)

FOREIGN INVESTMENTS: ARGUMENTS PRO AND CON

In what has been said, the reader has noted the role of American companies. And this raises the question of foreign investment in Latin America—particularly in Venezuela. Before going further with foreign investment, however, it should be made clear that probably in no other country in all Latin America is the political climate so favorable and in no other is so much American private capital invested. From the point of view of the United States the chief elements to be considered for satisfactory investment are:

Fig. 3. Cerro Bolivar, new iron ore bonanza, is regarded as the outstanding iron ore discovery of the twentieth century. It is estimated to contain about 1 billion tons of ore. Courtesy of United States Steel Corporation.

FIG. 4. Unloading ore barges at the transfer station—Puerto de Hierro, 230 miles north of Palua (see map). Here ore is transferred to the stockpile for loading into specially designed ore carrying vessels for shipment to the United States. Courtesy of Bethlehem Steel Corporation.

FIG. 5. Loading ocean-going vessels with iron ore at Puerto Ordaz—178 miles from the mouth of the Orinoco River and at the confluence of the Orinoco and Caroní. The Orinoco is in the background. Courtesy of United States Steel Corporation.

assurance against confiscation and expropriation, assurance that the investment may be equitably liquidated when desired, promise of a reasonable return, moderate and non-discriminatory taxes, practical labor and social legislation, and a stable government. In all of these Venezuela ranks high.

Now let's look at foreign investment from the viewpoint of Latin America. Some politicians and ardent nationalists (even in Venezuela) believe that their countries pay too high a price. They argue that their economies still are "colonial," that instead of supplying Europe and the United States with industrial raw materials and foods and getting in return manufactured goods, they should be doing the manufacturing themselves, thereby raising the standard of living. The real sacrifices they claim are made by those who mine the copper, tin, lead and zinc, manganese, and iron ore and prowl the jungles in search of balsa wood, quinine, and rubber.

The writer does not believe that this point of view is the correct one. Certainly Latin Americans, even Venezuelans, could not successfully launch such a venture as that being considered here. First, its people do not have the hundreds of millions of dollars required and, even if they did, it is by no means certain they would invest it in mining. Latin Americans have been prone to put their idle money in real estate or in investments in the United States or even in strong boxes. There is also the matter of technical know-how and managerial experience which accompanies American capital. Minerals are of no real value in the ground, since it is only when man begins to exploit and use them that they become valuable.

Another reason why Venezuela and in fact every Latin American nation should encourage foreign investment is to help to diversify the economy. Petroleum makes up 94 to 97 per cent of Venezuela's total exports. In no other country does a single commodity account for so high a percentage. This makes for extreme vulnerability to external contingencies, inasmuch as the quantity and price are subject to the fluctuations of the international market. Development of the iron ore deposits will contribute to some extent to a more balanced and diversified economy.

Thus in Venezuela there is a partnership whereby the nation supplies the raw materials and United States companies bring capital and technology. Benefits accordingly accrue to both.

Finally we come to what is no doubt the most important aspect of the problem: without this American investment the region under

consideration undoubtedly would have continued to be of little or no economic value for centuries more.

What Iron Ore Promises for the Lower Orinoco Valley

The present activity gives promise of being the goad to considerable development, especially of that part of the valley near the confluence of the Caroní and the Orinoco rivers. Waterpower resources here are large and untouched. On a 30-mile stretch of the Caroní is a potential of one million kilowatts and even of 300,000 kilowatts at the falls near the river's mouth. Manganese and bauxite deposits of undetermined value lie in the Orinoco Valley in addition to the 2 billion tons of high grade iron ore. Across the Orinoco and within 150 miles of where the two rivers meet, are tremendous resources of petroleum and natural gas, the latter being largely wasted at present because of no nearby market. (*Fig.* 1) The oil, natural gas and water power promise to provide the bases for a future industrial development that may make this region Venezuela's principal industrial area. As this paper is written, the Venezuelan government is announcing that construction is to begin at once on a new $60 million iron and steel plant and a $40 million hydro-electric plant near the mouth of the Caroní. In our part of the world, steel mills are industrial colonizers: perhaps this may happen in Venezuela.

Summary and Conclusion

Venezuela's problems, like those of all Latin American countries, are basically economic and probably the most vital element in their solution is a flow of capital from the United States. There appears to be mutual trust at the moment. The oil-producing companies and the iron-mining companies are not sucking the lifeblood from Venezuela, but are tapping great natural resources to produce wealth. In fact it is these companies that are primarily responsible for making Venezuela one of the richest and most progressive nations in all Latin America. Getting minerals and marketing them are highly venturesome processes, involving as we have seen, the investment of tremendous amounts of capital. Moreover, the companies are developing parts of the country that would stand still otherwise and are making possible improvements in the lives and living standards of the people. Significant too is the fact that these companies have a new social attitude: they do

not just obey the letter of the law, they go far beyond what the law requires.

The writer having visited all the iron ore properties as well as the largest and most important of the oil fields, believes that American investment with its accompanying organizing ability and technical skill, is making a distinct contribution to Venezuela's well-being. Mr. Benjamin Fairless, till recently Chairman of the Board of the United States Steel Corporation, expressed this well in 1953 when addressing a group of Venezuelan industrialists in Caracas:

> "When historians of the future come to appraise the true value of what we are doing here today, they may well find that the greatest benefits to the people and Government of Venezuela have come not so much from developing iron ore as from opening up a deep channel through the Orinoco River to the ocean. With cheap navigation and a plentiful supply of hydro-electric power, the Orinoco Valley will offer unlimited opportunities to new industries of many kinds."

GEOGRAPHIC LANDSCAPES FROM THE AIR

FLORENCE WHITBECK TILLMAN
Macomb, Illinois

The earth's surface and man's cultural pattern take on quite a new aspect when viewed from an airplane flying at several thousands of feet altitude. We small creatures, walking or riding around on the land, can see only a small part of the earth at any one time. We are more handicapped, perhaps, than the proverbial three blind men who attemped to describe the elephant. Even with the help of maps which cover larger areas than one can see on the land, and with the understanding we receive from reading geography books, we fail to perceive the larger pictures of large units of the earth's surface and the relationships of these areas to man and his works. It is when one sees from an airplane window the whole range of the snow-covered Uinta Mountains, for example, whose rounded surfaces have been cut into several cirques, like so many biscuits cut from a mass of dough, that one appreciates the real significance of glacial erosion in a mountainous area. At night when one travels westward from the humid central lowlands across the dry western plains, he sees the change in the distribution of towns and villages as they appear far below like so many burning em-

bers of a dying campfire. Again, as one crosses southern Michigan the irregular pattern of the roads, of the wooded areas, and of the cultivated fields, and the locations of cities and towns show the effects of the hilly recessional moraines; on the other hand the checkerboard pattern of roads and of fields reflect flat intervening outwash plains and ground moraine. Farther eastward in the Allegeny Plateau of southern New York State one is impressed with another and still different landscape—the dendritic pattern of the maturely dissected plateau where only the valley bottoms with their narrow flood plains are used for roads and some agriculture. All else is green with forest cover.

Effects of Altitude on Landscape

From an airplane the topography appears to flatten out as one ascends so that the smaller relief features become less and less easily recognized. It is necessary to learn to interpret topography and landscape features, such as road and stream patterns, shapes of wooded and cultivated areas, and of farms, the distribution of towns and villages, shapes and abundance of lakes, color patterns of the soil, shadows of mountains and of hills, the effects of haze on distant parallel ridges and of the cloud shadows on the plains.

The matter of scale, too, must be considered as a person flies over the land and water features at various levels. Naturally, the higher one flies above the land the larger becomes the area that is visible and the smaller will appear any individual feature or object. For example, at 2,000 feet, pleasure launches on Narragansett Bay look like toy boats; at 18,000 feet, ocean-going tankers look like the tip of a toothpick behind which appears a tiny white tail marking the trail of the ship on the water surface. On one's first trip he does not even recognize a railroad track from a height of 19,000 feet. Nor can he tell whether he is crossing the Illinois River or the Mississippi River until after he has seen both of them from the air. Almost the whole of Manhattan Island, from the Battery to Washington Bridge, can be seen at one glance. The skyscrapers look like the toys on a play-room floor. Automobiles, if they can be seen at all, appear as ants crawling along a line. As one approaches New York City from the south, Sandy Hook on the coast of New Jersey, spreads out below like an immense topographic map. The shore features resulting from wave and current action are evident even to the inexperienced eye. On the other hand,

when one flies low along the shores of the Hawaiian Islands, the true horizontal and vertical scale of the volcanoes and of Diamond Head are discernible. Consequently, from the air, one is greatly impressed by the grand scale of nature and it works; and the comparative insignificance of the cultural patterns produced by man's efforts.

In studying geography from the air, the time factor plays an important role, since, in a comparatively short time one can cover several regions and see their different and like characteristics. The land below lies spread out like a great map modeled by streams or glaciers, or waves and currents, or wind or man as the case may be.

TYPICAL LANDSCAPES BETWEEN ST. LOUIS AND OAXACA, MEXICO

The following pages will summarize some of the memorable land and seascapes as they were observed from a plane on a trip from St. Louis to New Orleans, Yucatan, Mexico City and Oaxaca, Mexico. One of the outstanding areas between St. Louis and New Orleans was the Yazoo Basin. The old, meandering courses of the Mississippi River and its tributary, the Yazoo River, stood out clearly. The Yazoo Basin of western Mississippi looked like an immense swirling pattern of greys, browns and greens resembling the curves and sweeps of some youngster's finger painting. But these swirls consisted of the forested areas, the swamps, the grassy or the plowed lands, and the roads, all of which followed the curves of abandoned meanders, the former beds of the Mississippi or Yazoo rivers. The outer margin or limit of the area of the swirling patterns was marked by the scalloped shadow of a bluff. To the east of the bluff stretched the dendritic pattern of streams cutting into the upland plain.

New Orleans is called a Gulf port, yet it is actually some one hundred miles from the Gulf of Mexico. One's sense of scale while flying was so confused that when he learned of his approach to the city and he saw a large body of water below him he quickly decided it was the Gulf of Mexico, for there was no land visible on the far side. In fact, he learned that the large body of water was not the Gulf, but a section of Lake Ponchartrain. The lake appeared so large that one could not see the farther shore as the plane banked to make a landing on the New Orleans air strip. The Mississippi itself, the mightiest river in North America, seemed like a small stream in contrast as one approached New Orleans. The delta of the

Mississippi has rarely been adequately described clearly in books. From New Orleans to the Gulf it took about 20 minutes of flying to cross that section of the delta. It was seemingly an endless carpet of deep green, cut by a maze of small streams and bayous, and straight man-made canals. Some canals were mere stubs extending from a larger canal out into the mangrove and cypress swamp to a "little" oil derrick. Only one road was visible crossing the delta southward; along this was built a single row of tiny houses—one of the longest one-street towns in the United States. On the narrow canals were toy-like barges. They were plying up or down the little canals, some carrying petroleum from the wells to a central refinery, others to a tanker. Dotted here and there on the green carpet of the swampy jungle, and apparently on the water, were the flares of the burning gas wells. At isolated spots and far below the plane lay a building, or group of buildings, where the families of the oil workers lived, entirely cut off from other human habitations, except by water or helicopter. One could not help feeling the loneliness of those people living down there in their clusters of little block-like homes. Perhaps the view from above gave one a keener appreciation of the trials and problems of those people working in the oil industry. One could see, too, how in past times the intricate waterways of the delta could have been the homes of pirates and outlaws. The margin of the delta was not a line, but a wide zone of bays and capes, islands, bars, peninsulas, and protected lagoons—an area neither land nor sea. A narrow white border line of breaking waves marked the outer margin of the land. Furthermore, the tides moved in across low coastal flats covering them with shallow water, and moved out again to leave wet, red, muddy flats which extended finger-like far into the green of the mangrove jungle. It was only from the air that one could truly get a broad view of the endless work of the river and its many mouths together with the action of the sea in shaping this land of beauty, grandure, romance and danger.

The ocean and the clouds as well as the land took on different appearances from the air than from a ship, or a car as the case might be. All nature seemed less forbidding, more kindly and softer from an altitude of 18,000 feet. The Gulf of Mexico appeared like a huge blue-green sheet of glass or ice, on which were spread the soft tufts of cumulus clouds. They were like fluffy masses of soft cotton batting on which one might lie down and sleep. The clouds

seemed to rest directly on the glass-like surface of the waters of the Gulf. Even waves were invisible from the 18,000 feet elevation, and a ship looked like a very small toothpick with a white tail which was the trail of the boat through the waves.

From above, changes in depth of the water were very evident. Along the shore one saw irregular bands of brown or yellow near the shallow edge of the land; then the green band farther seaward in the deeper water, and finally the blue of greater depth. When a stream emptied into the ocean water, the sediment which it carried discolored the blue or green waters and changed it to a reddish brown or yellow. Where a coral atoll had been built up from the sea bottom by the tiny marine animals the shallow circle of the lighter blue water was visible from above. Not far north of the coast of Yucatan, Mexico, such a coral atoll several miles in diameter was seen down thru the clouds. On a cloudless day this circular light blue atoll must have been a beautiful sight. It was thru the kindness of the pilot that we had been able to observe this interesting feature.

Yucatan and its limestone plain brought still another picture to the observer. The coast was somewhat like that of the Mississippi Delta, but it was more regular. The mangrove swamps, tiny bays and bars, and shallow tidal flats were all there but the width of the area was much narrower. The land itself, however, was a new landscape. It was a checker board of grey-greens—the fields of the henequen plantations. The little grey-brown villages each with its tiny church usually with two spires, punctuated the plain at intervals. In some parts of Yucatan, where henequen is not grown, the pattern was more irregular. Here the brownish green of dry shrubcovered savana was broken by irregular patches or "milpas." The milpas were the state-owned and community worked corn fields awaiting the rainy season for the planting. Roads lined with light grey and white limestone fences wandered around seemingly without reason, but actually they followed the slightly higher land between the sink holes of the limestone plain. From the air it was very interesting to study how road pattern was affected by topography. In fact, the road pattern of any landscape as seen from the air has a significant relationship to the physiography of the region. Many examples, too numerous to list, have been observed from planes.

Another entirely different landscape was seen as one crossed

from Yucatan over the Gulf to Mexico City. The approach to land was heralded by a mass of clouds—those clouds which bring so much moisture to the east side of the Sierra Oriental of Mexico, those clouds which drop the rain to form the dense, almost impenetrable jungle near the coast. The clouds hugged the valleys and allowed the mountain peaks to "float" above them. Mt. Orizaba, the highest peak in Mexico, and second highest in North America (18,225′), was a breath-taking sight as it lifted its snow and ice capped peak above the grey banks of clouds. The air route was forced by the clump of very high peaks surrounding Orizaba, to veer to the north across a high pass in the mountains in order to enter the valley of Mexico from the north. Crossing the mountains which form the eastern bastion of the plateau of Mexico one was impressed by the extreme ruggedness and intricate dissection of the area. Deep canyons and knife-edged divides made up the landscape. Each peak and slope, each valley side appeared in deep relief due to the play of sunlight and shadow. It looked much like a relief model used in a geography laboratory. Evidently, man has made little inroad into the jungle. Only here and there were villages found in the valley bottom where a small flood plain made agriculture possible, or where the mountain slopes were not too steep for cultivation, or where the hilltops offered a little flatter area for a field of corn. Detail of the landscape was more evident because on this stretch of the flight the plane was not so far above the land surface. One wondered how Cortez and his cohorts ever found a trail over this barrier, or how they were ever able to penetrate thro the mass of jungle.

Then suddenly to the west of the mountains appeared the flat fertile fields of the basins of the Mexican Plateau. Roads and villages appeared and masses of trees disappeared. Isolated hills, some fault block type and some volcanoes rose above the flatter areas. A few minutes, but many miles later, the yellow, dry, desert-like flats of the drained Lake Texcoco made up the landscape. And down below were two "ant hills"; they were the Pyramids of the Sun and of the Moon. For a minute one's imagination reverted to the days of the Toltecs and the Aztecs and their centuries of culture. As one approached Mexico City, one had expected to have a beautiful view of the twin peaks of Popocatepetl and Ixtacihuatl. However, they were invisible; the northeasterly trade winds had picked up the fine dust from the dry fields and the Lake Texcoco

flats and enveloped the whole valley and the surrounding mountains in a fog-like dust cloud of brownish yellow. During the dry season one rarely saw the tops of the mountains from Mexico City.

Momentarily the plane penetrated down thru the dust layer and the wide expanse of Mexico City was in view, a checkerboard of streets and flat-topped buildings punctuated here and there by the spires and the shining tiled domes of the churches, and a few modern sky scrapers. One had little time to study the city and its environs for the plane rapidly banked and circled to land at the spacious airport which was built on the old lake plain.

Another approach to Mexico City was from the south—from Oaxaca. This gave the airplane observer quite a different landscape. Oaxaca in its basin-like setting, between the mountains was a panorama of green and brown and red. Because the small scale irrigation projects used the river water, the lush green area followed closely the course of the river. Beyond this was the brown plowed fields awaiting the rainy season for corn planting; beyond this were the grey-brown dry, grassy grazing areas which reached part way up the mountain sides. The highest mountains were tipped green with pine of the temporate zone. As one flew north from Oaxaca across the masses of green and brown mountains he could follow the course of the Pan American Highway. It curved around the mountains, climbed over several divides, passed checkerboard towns with their usual spires and shining tile domes. The landscape which had a maximum relief of 9000′ seemed to flatten out and one could not appreciate the truly rugged terrain on which the engineers had built the road. When the road stretched to the northeast and left the air route, one passed over a highly eroded badland area. The fine dendritic pattern of the gulleys made a brilliant picture in the sunlight. Another section of the landscape below showed the parallel pattern of the eroded edges of dipping layers of rocks. The variation in the colors and the rocks, the differences in the resistance of the layers showed up clearly in the absence of vegetation covering. As one flew still farther north on a clear day one sometimes saw to the east the majestic snow-capped peaks of the volcanoes: Ixtacihuatl and Popocatepetl. On a cloudy day the tip top of the peaks only were visible as they penetrated the blanket of clouds. A faint trail of steam extended plume-like from the active Popo. Just before the plane crossed the mountains from the south into the valley of Mexico and almost under the plane was a

seemingly small volcano whose finger-like tongues of black hardened lava stretched down thru the forest. The wrinkles and corregations of the lava caused by movement of the cooling rock, were easily visible from the plane. The plane was flying only a few thousand feet above the mountains. This closer view made the detail of the landscape more clear.

Soon there appeared a small steel-blue lake and canals lined with single rows of tall straight green trees. Each tree cast its slender shadow to the west. These were the famous gardens of Xochimilco. The pattern of the green vegetation and trees, the water and shadows make a never-to-be forgotten picture.

Summary and Study Aids

Such were some of the first impressions of a geographer as she flew high above the ever-changing landscapes of parts of our earth. Only occasionally can one depend upon the airplane crew for help in locating oneself. One can get better mental as well as photographic pictures of the landscape from the plane window if he selects the shady side of the plane. One is thus looking into the lighted areas rather than into the shaded side of the relief features. For those readers or travelers who wish to experience for themselves some of the thrills of flying, the following books and maps will help to increase observational powers:

1. Lobeck, A. K. *Airways of America.* Physiography of the United States from the Air. Geographic Press. Columbia University, New York 27, N. Y. $4.00.

This excellent book describes with words, pictures, maps and diagrams the airplane journey from New York City to Chicago to San Francisco by the United Air Line routes. There are other chapters also which will help one's understanding of flying.

2. United Airlines publishes and distributes free a booklet showing the relief of the country along the route of the system. The topography is so beautifully modeled that one can easily pick out the places as one passes over them.

3. Sectional aeronautical charts of the United States are available from the U. S. Coast and Geodetic Survey, Department of Commerce, Washington, D.C. An index map of the U. S. is available free. Each chart covers an area approximately 300 miles east and west by 100 miles north and south. These maps usually have 500 foot contour intervals and some color shading to show the

relief. These maps are extremely helpful for any airplane trip. On the charts is the information necessary for the pilots flying that course. There are many features of interest to the geographer. These maps are also helpful for geographers traveling by car or train in areas of the country where the relief is great. Price of each chart is 25¢.

4. Sectional aeronautical charts of the world. Index map free. Charts similar to above. Scale 1:1,000,000.

5. Rich, John Lyon. *The Face of South America, An Aerial Traverse.* Am. Geographical Society Special Publication #26. By means of many fine aerial photographs, and maps together with detailed descriptions and interpretations of the natural and cultural landscapes, this scholarly book includes the journey by air from Panama thru Colombia, Equador, Peru, Chile, Argentina, Uruguay to Brazil and north across the Amazon. For a serious traveler flying over South America, with an interest in geology, physiography and geography, this book is a "must." It is guaranteed that the traveler will see more and understand more of what he sees if a careful study with notes can be made preceding the trip. The profession needs more such books.

6. Physiographic diagrams of all the continents, the U. S., and some of the states. Published by Geographical Press, Columbia University, New York 27, N. Y. Send for price list. These maps, if used enroute, will help one greatly to interpret what one sees below. If possible, one should draw on the map the course of the flight so that he can identify his position. If the pilot does not announce the course, ask the stewardess to have the pilot give the information from time to time over the public address system.

7. Raisz, Erwin. *Map of Landforms of the United States.* 50¢. Harvard University, Cambridge, Mass. Send for price list of all his land form maps. These can be used in the same way as the physiographic diagrams mentioned above.

8. Official State road maps are sometimes very helpful, especially those which show topography, such as the ones of Wyoming and Nevada. However, these maps are not necessary if one uses the aeronautical charts which are more accurate, more informative, and can cover the whole area of one's trip.

INDUSTRIAL PROGRESS IN THE PHILIPPINES*

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Philippine economy is basically agricultural economy, but industry is on the march. There is a current impetus to the development of basic industries, heretofore unimportant on the Philippine scene. Much of this industrial development is quite recent. The current portrait of manufacturing can best be shown by describing the pattern of manufacturing in 1950-51, then indicating the growth of the past few years.

The Pattern of Manufacturing, 1950

In 1950-1951, Philippine manufacturing consisted principally of three types of establishments: (1) There were, and still are, hundreds of small home or family industries—pottery, shoes (wooden clogs and abaca sandals), weaving industries of various kinds, furniture (both hardwood and rattan), embroidery work, corn and rice mills, muscovado and panocha sugar mills, and bolo factories are illustrative.

(2) There were many larger plants that processed agricultural, mineral or forest products, primarily for export, and were financed by foreign capital in most instances. Included in this group are the 25 sugar centrals, some of them with associated distilleries; dozens of large sawmills; desiccated coconut plants, the largest one employing about two thousand people; coconut oil mills and soap factories; rope and cordage firms; a huge pineapple cannery that employs 900 persons; and the larger cigar factories. As compared with their prewar predecessors, many of these industries have shown significant progress and increased production by the use of newer machinery or other improved techniques and procedures, or as a result of better labor relations, or other factors.

(3) There were a few sizable truly Philippine industries that provide a special need or supply a particular demand. Some of them are government subsidized, the Philippine National Development Corporation serving somewhat as the U. S. Recon-

* Presented at Indianapolis meeting of the National Council of Geography Teachers, November 25, 1955.

The field research upon which this paper is based was made possible by grants from the United States Educational Foundation in the Philippines (Fulbright Program) and the University of Illinois Research Board.

struction Finance Corporation, operated during the war years to build plants and otherwise underwrite some of the costs in the interests of national need. A large cement plant near Cebu City and a coupleof cotton textile plants are illustrative. Others in this group represent private investment. A large plant manufacturing American type cigarettes, a paper mill, the largest brewery in the

FIG. 1. Near Dumaguate, Oriental Negros, pottery is moulded from local clays and fired in the open yards. Fuel is the coconut and buri palm and bamboo. About 400 small cooking pots are baked at a single firing, which is repeated about twice a week at this location.

Orient, a glass factory and the Philippine Marble Works (primarily supplying agricultural limestone) are in this group.

The paper mill, at the Bais sugar central in Oriental Negros, is a pioneer in the use of sugar-cane bagasse as a basic raw material in the manufacture of fine printing, bond and typewriting papers on a commercial scale. It has commanded the attention of paper makers the world over. This pioneer Philippine industry was started in 1941, but operated only a few months before the Japanese invasion. Rehabilitated in 1948, it resumed operations in April, 1949. It is a subsidiary of a vast Spanish concern (Compania General de Tabacos de Filipinas) with established interests in tobacco, sugar, and alcohol, desiccated coconut, and shipping before it became interested in paper manufacture. I believe that only two other plants (one in India, the other in Brazil) use bagasse and

both of these are post war developments built only after the Bais mill had set the pattern. The Indian plant began operations in 1952, the Brazilian one in 1954.

Industrial Growth, 1950-1955

All three types of manufacturing plants listed above have shown an increase in the past few years, in part the result of U. S.

Fig. 2. A part of the market at Cebu City showing some of the diverse products of nearby home industries. In addition cloth is woven on home looms at Cebu and in many other communities in the Philippines.

and United Nations technical assistance funds, but in part as a result of a new national impetus to industrial development—a national recognition that Philippine economy is grossly overbalanced in favor of agricultural economy.

The major developments of the past five years illustrate this emphasis upon industrial development, and especially the emphasis upon basic industries. New plants include hydroelectric installa-

tions, steel and shipyards, petroleum refining, aluminum fabrication, fertilizer, zippers, drugs, jute and kraft paper bags, steel drums, household and office equipment, rubber goods and flashlight batteries.

Power. Foremost in any industrial plan is power. The Philippines have only limited coal reserves and no proven petroleum resources. If basic industries are to prosper, the development of

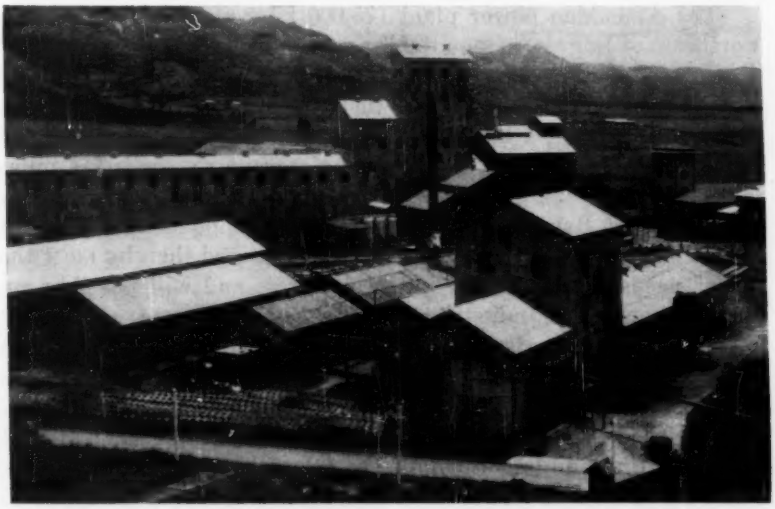

FIG. 3. The paper mill at the Bais sugar central was the first paper plant to use bagasse for the commercial manufacture of paper. The tall building is the paper mill; the Bais distillery, using molasses from the central, occupies the lower buildings in the foreground.

hydro-electric energy, then, is a prime requirement. Between 1950 and 1955 two major power sites have been developed, one at Maria Cristina Falls in Mindanao, the other on the Agno River in northern Luzon.

The idea of a power plant at scenic Maria Cristina Falls on the Agus River between Lake Lanao and Iligan Bay was first conceived in the early thirties. In terms of physical potential, it is the most ideal power site in the Philippines. Lake Lanao lies in an area of heavy and uniform rainfall and at an elevation of more than 2000 feet. The water drops from the lake to the costal plain within a distance of less than 25 miles. Of the several potential power

sites on this short river, Maria Cristina is the best and the cheapest to develop. The project was begun in 1950 and the first unit of 25,000 kilowatts was completed in October, 1953. A second unit of the same size was put into operation in 1955. This power is used in the city of Iligan and provides the energy to operate a steel mill and two fertilizer plants. Both are basic industries not previously feasible because of high costs, but both badly needed by the new republic.

The Ambuklao power plant (75,000 kilowatts), about 25 miles northeast of Baguio, in mountainous northern Luzon was completed just a few months ago. It too is in an area of high rainfall, altho precipitation is not so uniformly distributed as in Mindanao. Without a natural lake, a huge rock and earthen dam (almost 400 feet high) on the Agno River has created a storage reservoir 7½ miles long and more than a half mile wide. Ambuklao power will supply the fuel-short Baguio mining district, will supplement the output of two smaller and older plants near Manila and thereby meet the power needs of the Manila industrial area, and will possibly encourage new, small industries in central Luzon.

Steel and Shipyards. The steel mill and shipyards are part of an integrated industrial setup that is for the present only two-thirds of the planned operation; and an operation that has been implemented in reverse. The original development plan of the National Steel and Shipbuilding Corporation (Nassco) was planned to include pig iron production, steel and rolling mills, and shipyards. At present Nassco is operating the Iligan Steel Mills and the Bataan National Shipyards, but according to the original plans these units should have been established only after Nassco had constructed an iron ore smelting plant. Since, at present, Nassco has no facilities for economical processing of iron ore into pig iron, the government decided to implement the second and third phases of the idea, instead of concentrating on the problem of pig iron production. The steel mill, using Maria Cristina power will, no doubt, return a profit; but the shipyards will probably need subsidization in some form. This is fully recognized by the Philippine government, but it does not disturb Philippine economists; and it need not disturb us, I suppose, for the shipyards of this country and of the United Kingdom are subsidized, at least in part.

Fertilizer. A fertilizer plant is a near must in a country that is trying very hard to modernize its agriculture. This industry has

been envisioned for many years, but without cheap power, it was inconceivable. Initiated with U. S. Point Four funds (later MSA and FOA funds), it was tied in with hydro-electric development on Mindanao. Presumably it helps to provide fertilizer (ammonium sulphate) to the rice farmer and the sugar planter at a significantly lower cost than he had to pay for imported fertilizer. The first plant (50,000 ton annual capacity) has now been supplemented by a second one of comparable size but using local rather than imported raw materials.

Petroleum Refining. Much of the new industry, however, represents the investment of private American capital in the Philippines. The Caltex petroleum refinery on Batangas Bay, near Manila, is representative. A $15,000,000 refinery, with a daily capacity of 13,000 barrels of crude oil, it is not large in comparison with those in the Whiting-East Chicago area, Bahrein, Abadan, or the Beaumont-Port Arthur District. However, it is another important first in a country that has heretofore depended entirely upon the importation of refined petroleum products for its cars and trucks, mechanized farm equipment, Diesel power plants, interisland shipping, military and civilian aircraft, and Coleman lanterns. The land for the refinery, purchased in 1952, lies on the shore of spacious Batangas Bay and only 60 miles from Manila, a near ideal site and position for a petroleum refinery. It too began operations this year (1955).

Aluminum. The new aluminum plant, in the Manila area, is the aluminum foil and sheet rolling mill of Reynolds Philippine Corporation. It is owned jointly by a group of Philippine investors (49 per cent) and by Reynolds Metals (51 per cent), and began operations last May. Currently, imported aluminum pigs are melted down and recast into slabs suitable for rolling. Long range plans envision the eventual production of raw aluminum at or near Maria Cristiana Falls.

CONCLUSION

Basically, these new industries compliment the earlier industrial plants in the Philippines. They, together with the Bais Paper Mill (the first paper mill to successfully use bagasse as its cellulose raw material) and the Cebu Portland Cement plant make the Philippines less dependent upon imported manufactured goods. They provide additional employment opportunities for the rapidly

expanding population. At least some of them will provide profits that will remain in the Philippines, possibly for reinvestment. Their varied products give the Philippine industrial pattern a more diversified appearance, the Philippine economy a more stable base.

Despite this current impetus to manufacturing, the Philippine economy is, and will continue to be cast upon an agricultural base. Nonetheless, industrial progress is real, and continued expansion is probable. The new industries are, for the most part, producing for the Philippine market, rather than for export. Certainly this is a move in the right direction. It is another illustration of Philippine leadership in Southeast Asia, even tho much of it is Philippine-American cooperation, much as the two countries have cooperated in the sphere of political leadership.

GEOGRAPHICAL STUDY OF THE UNITED STATES IN ENGLISH GRAMMAR SCHOOLS

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The secondary grammar schools in England provide education for children who are selected at the age of eleven. The majority of these pupils remain at school until they are sixteen, by which time they are eligible to sit for an external examination conducted by one of several University Boards and now known as the Ordinary Level of the General Certificate of Education. A measure of success at this stage, together with subsequent study for two or three years in the Sixth Form, enables them to attempt the Advanced Level of the General Certificate before they leave school—to proceed, if they so wish, to a course leading to a degree at one of the Universities.

The Program of Geographical Studies

In the grammar schools the course of study in geography, as in other academic subjects of the curriculum, is designed (particularly in the fourth and fifth years) to comply with the requirements of the external examination taken at the age of sixteen, but within these broad limits there exists abundant scope for varied treatment of the subject. There is now fairly general agreement that the five-

year course should embrace the whole world in varying detail, to provide a background for the understanding of the relations between man and his physical environment, for the study of fundamental distributions and for the acquisition of skills such as the compilation of simple sketch maps. Greater attention is usually given to the homeland, i.e. the British Isles, and to one or more selected areas of continental size such as Europe, Asia or North America. Study of the homeland and of the local area surrounding the school, pursued by work in the classroom and wherever possible, by excursions and observations out-of-doors, can be utilized by the teacher to develop the pupils' facility in the use and interpretation of large-scale maps.

The majority of schools construct their geography course for pupils aged eleven to sixteen upon a framework of regional studies, into which are fitted at the appropriate stage, the elements of systematic geography such as global dimensions and directions, the main structural and relief features of the continents together with the associated processes of formation and modification, and the elements of climate, e.g., temperature, pressure, winds and rainfall, with especial reference to their influence upon human activity. Dissatisfaction with the study of one continent after another has led in recent years to the revival of an alternative scheme whereby the whole world is studied each year from a different viewpoint. Landforms and physical features provide the material for one academic session, climate and vegetation occupy a second year, and economic geography a third. The first year is devoted to simple studies of man in his environment to introduce the variety of geographical conditions over the globe, and the fifth year, building on the knowledge thus gained, reverts to regional studies of the areas which receive emphasis in the external examination at the end of the course. Advocates of this "concentric method" claim that this approach helps the pupils to retain and build upon information acquired in the earlier years of the course more easily and more effectively than under the orthodox scheme of studying the countries of the world consecutively.

Grammar school teachers are not compelled to comply with any prescribed arrangement of the work in the five year course; the head of the geography department in each school is free to plan his own program, so that variations are numerous. Twenty years ago, when the Geographical Committee of the Association of Assistant

Masters in Secondary Schools prepared the original edition of their "Memorandum on the Teaching of Geography"[1] they invited heads of geography departments in secondary schools to outline the courses of study which were followed, and it was found that of the eighty which were submitted no two schemes agreed in every detail! It is therefore possible for children in England to study North America in any one year of their school course, so that the degree of detail and the methods of presentation concerning the geography of the United States will vary according to the scheme of work pursued. One popular method of following the regional plan is to sub-divide the continents into broad latitudinal zones and deal with the so-called "Southern Continents" of Australia and New Zealand, Africa and South America, in one year; North America and Asia in a subsequent year; and Europe and the British Isles in a third. An alternative method is to group the continents longitudinally so that the Americas are studied one year; Asia, Australia and New Zealand in another; and Europe and Africa in a third, altho not necessarily in that order. The number of permutations which may be constructed renders it difficult to pronounce on the treatment given to the United States in the geography syllabus of the English grammar school, and it would require the findings of a nation-wide questionnaire to obtain a full and true picture. Nevertheless some indication of current practice may be gauged from an objective survey of textbooks designed for use in these schools.

Analysis of School Textbooks

The degree to which grammar schools adopt the practice of studying geography by regions is revealed by the fact that in contrast with the one series of textbooks written around the concentric method there are about fourteen distinct series of books covering the world on a regional basis, all offered by their respective authors or publishers as suitable for the use of grammar school pupils up to the age of sixteen. The publishing firms which produce these texts compete keenly for their academic customers, and with such a wide choice available to heads of geography departments it is understandable that only the books which satisfy current teaching trends manage to survive the economic struggle for existence. Thus in the last few years four or five series of books which have been

[1] A valuable compendium which was re-written and published in 1952 under the revised title of "The Teaching of Geography in Secondary Schools."

on the educational market since the nineteen-thirties have gone out of print and are not being reissued, whilst at least three new series are in active preparation.

Of the textbooks on North America currently available all but one are in a series covering the whole world, and with one exception they all include Central America and the West Indies under this title, so that on this evidence the tendency in England is for the Caribbean countries to be associated regionally with North rather than with South America. In size the books average 5″ × 7¼″ and the number of pages on North America, including text, illustrations, exercises and index, varies from 76 to 274, the median figure being 159. It is a significant commentary on present trends in the teaching of geography that all of these books contain maps, many of them of the sketch-map type which can be reproduced easily by the teacher on the blackboard or by the pupils in their writing books; all but one are adorned with photographic illustrations, and with one exception all contain questions and exercises. These exercises, designed to test if the reader has understood the text or to suggest lines of investigation to supplement the information given in the book, appear most commonly at the end of each chapter or, less frequently, at the end of the book. Most of the textbooks contain an index, which may take the form of a list of place names, or subject headings, or both, of varying length and usefulness.

In none of these books is the geography of the United States divorced entirely from that of the other parts of North America, whereas Mexico is usually accorded a chapter to itself. The practice most frequently followed is to describe the structure, relief, climate, natural vegetation and possibly the European settlement of North America as a whole, before proceeding to deal with the human, social and economic aspects of the various regions of the continent.[2] Canada and the United States are sometimes given separate treatment for the regional description of human occupance, so that one chapter will deal with production and export routes of wheat in the Prairie Provinces of Canada and another part of the same book will be concerned with farming in the Middle West of United States. More commonly, however, the regional subdivisions of the lands adjoining the Canada-U. S. A. border, cut

[2] Very few books, be it noted, reverse this treatment to begin with the detailed regional studies and end with the general geography.

across the international boundary, and typical chapter headings are "The Pacific Coastlands," "The Western Highlands" or "Farming in the Great Plains." The mineral resources of the two countries are often treated apart, and in several books the regional studies of North America are rounded off with chapters on transport and communication in Canada and United States separately. Of the regional sub-divisions of the United States those which emerge with the greatest clarity appear to be New England, California and the Cotton Belt.

Apart from these observations of a rather general nature it is difficult to proffer opinions on the selection of geographical material owing to the great variety of length and treatment in the different texts. Thus the extension of settlement in the nineteenth century, the achievements of the T.V.A. in the twentieth, or functional differences in the urban pattern of Greater New York may receive detailed treatment in some books and be completely omitted from others. Such is the range of possible topics that any generalizations would tend to be misleading. Nevertheless, one feature of the information contained in these books is capable of impartial assessment and throws light on certain aspects of United States geography which are emphasized in English grammar schools. The writer has recently been engaged in a study of the place-names which are mentioned with greatest frequency in textbooks, with a view to ascertaining their relative importance in school geography. The findings so far as they concern the United States, may be of interest to American teachers and students.

Significant Place Names in Grammar School Texts

A list was compiled of all the geographical names which appear in each book on North America whether in the text or in exercises, on maps and diagrams, or in the captions to illustrations. For the purpose of this investigation, in addition to the fifteen textbooks referred to above, four other books were examined. These latter were sketch-map books, larger in size but smaller in the total number of pages than the ordinary textbook; averaging $7\frac{1}{2}'' \times 9\frac{3}{4}''$ in size, and forty-five pages in number, they contain large sketch maps and notes on alternate pages. They contain no photographic illustrations and are considerably cheaper in price than the ordinary textbook, so that for this reason they are often used in grammar schools as a supplementary source of information. No record

was kept of the number of times that a name recurred in any book; a single reference qualified as a frequency of one, so that in this analysis of nineteen books the highest possible frequency of occurrence was nineteen. All the names were subsequently grouped into four categories ranging from high frequency names which appeared in more than three-quarters of the books down to low frequency names which were found to occur in fewer than one-quarter of the nineteen books. The number of different United States names in any one book ranged from 74 to 323, the median figure being 194. No fewer than 632 different names were gathered from the nineteen books but many of these were of very low frequency occurrence, and 205 names had the lowest possible frequency, i.e., one. Interest focuses chiefly on the high frequency names which appear in more than three-quarters of the books, since these offer some guide to the names which are considered by textbook writers to be most important for children in England who are studying the United States. There are 89 names in this category, if one includes the Panama Canal which is properly associated with the United States even tho it may be mentioned in the section

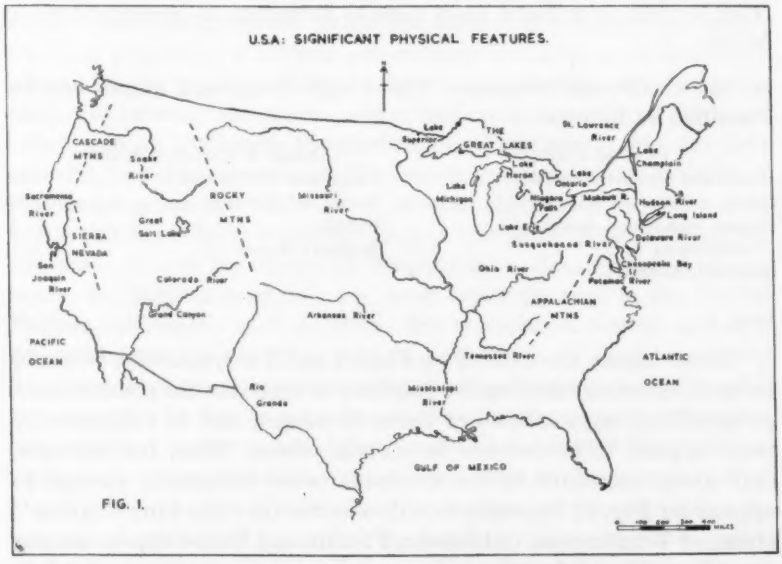

Fig. 1. Physical features of the United States which are named in more than 14 out of a total of 19 English school textbooks dealing with the geography of North America.

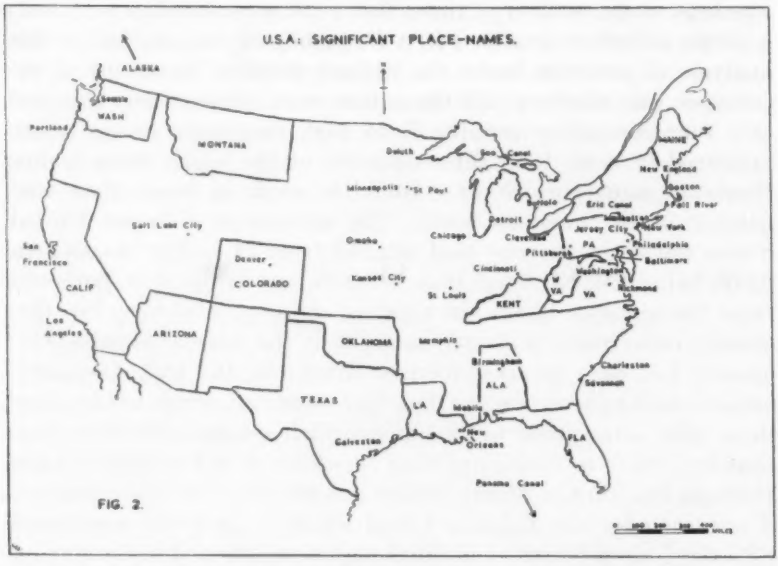

Fig. 2. Social and economic features of the United States which are named in more than 14 out of a total of 19 English school textbooks dealing with the geography of North America.

on the Caribbean countries. These high frequency names can be classified as follows:

Physical Features		*Social & Economic Features*	
Rivers and associated features	17	Cities and Settlements	34
Lakes	9	States and Territory	16
Oceans, islands and coastal indentations	5	Canals	3
Mountain Ranges	4	Regional Names	1
Total	35	Total	54

These names are located on Figs. 1 and 2 respectively. It would be an interesting exercise for teachers to estimate the predominant geographical associations of these 89 names, and to suggest why some appear in preference to certain others. Thus, for example, only about one-third of the 48 states occur frequently enough to appear on Fig. 2; the curious will observe that the four "corner" states of Washington, California, Florida and Maine appear among the select fifteen, but there are no states named in a broad belt extending eastwards from Montana to the Ohio River. The map locates 18 out of the 20 largest cities in the Union, but only 8 out of

the 30 next in size, so that a number of smaller towns are mentioned because of some particular geographical significance other than size of population. Thus, Duluth is representative of the Lake Superior ports handling iron ore and wheat; Fall River typifies the textile-manufacturing towns of New England, and Charleston and Savannah are usually mentioned in connection with exports from the Cotton Belt. Many of the physical features located on Fig. 1 are primarily important for their significance in human geography; thus the Mohawk River achieves prominence because of the route-way between New York and the Great Lakes which utilizes the valleys of the Hudson River and its tributary; the Potomac is the river on which the Federal Capital is located, the Rio Grande marks the international boundary between the United States and Mexico, and so on.

CONCLUSION

The teaching of geography in English schools during the nineteenth century fell into disrepute because of the undue emphasis which was laid upon the learning by heart of an excessive number of geographical names, many of which were relatively unimportant. Enlightened geographers today condemn this "capes and bays" teaching typical of a former generation, not because of the stress placed on the pupil's ability to locate and identify names on the map, but because the names which had to be memorized were not selected with sufficient discrimination. Teachers today in their anxiety to avoid committing this mistake may err on the side of emphasizing too few names, but at least the names on which they lay stress have been carefully chosen for some geographical significance. It will be observed, for example, that Fig. 1 does not locate the highest peak nor the most westerly cape in the United States, for names such as these are not considered of sufficient importance in the crowded program of study. It would probably be a generous estimate if we reckon that on the average the English boy or girl who leaves a grammar school at the age of sixteen has concentrated on the regional geography of the United States for no more than three 40-minute lessons per week thruout a period of about three months. Within these limitations of time available the essence of good teaching is that the pupil should acquire a balanced and representative picture of the varied ways of life of the American people, viewed against the background of their physical environment.

POSTAGE STAMPS: A USEFUL TEACHING AID

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Postage stamps are valuable to the geography teacher for several reasons, especially as a motivating device. The motivation of learning may often be a serious problem in the teaching of geography; because, in spite of the fact that geography has the allure of "far-away places with strange sounding names," the fascination of the exotic is often dulled by the pre-occupation with daily lesson assignments. There are times when the most carefully planned unit fails to inspire the class, making it necessary to use some method or teaching device to change the colorless assignment into a vital learning experience. Most teachers have "tricks of the trade" to use in such emergencies. A selection of slides, a motion picture or a field trip may provide an interesting change in the usual class routine. A representative object, such as a serape or a water jug that "really came from Mexico," can cause the students to want to know more about that country. The value of such teaching aids is well known, and it is equally well known that few teachers have all such materials that they need.

Altho there is nothing novel about using postage stamps in such situations, the value of their use is not often remembered. Several articles have called attention to their use, but they may not be current and available to all geography teachers. It may be that some teachers realize the value of using stamps, but hesitate to try them because they do not know about philately or how to obtain the stamps. The purpose of this article is not to present postage stamps as a novelty, but to remind teachers of their possibilities and to make specific suggestions as to how to obtain and use stamps.

Postage stamps from abroad are actual foreign objects; small, portable and cheap. Because they are so inexpensive, there is no great loss if the stamps are torn or soiled in handling. The fascination of postage stamps is indicated by the thousands of persons, adults as well as children, who find that stamp collecting is a wonderful hobby. They have even coined a word to describe their hobby, "Philately." Of course, not all students will be enthusiastic about stamps just as all adults are not philatelists. This lack of enthusiasm may be one limit to their use. It must be remembered that

part of the appeal of stamps is the novelty, therefore repetition may dull the interest in them. Used occasionally, and with proper preparation, stamps are a stimulating and informative teaching aid.

There are many ways in which postage stamps can be used; therefore, the following applications of stamps to the teaching of geography are only suggestions made to stimulate the teacher's imagination.

How Stamps May Be Used

Stamps can be used as an incentive for learning the location of countries. Of course, an encyclopedic knowledge of place locations is not the chief aim of geography, but it is impossible to really "know geography" without knowing the location of important countries and cities. If students are handed several foreign stamps, they usually want to know where the stamps are from and how far away the country of origin is. The easiest way to determine this is to use a large world map to locate the issuing country in reference to the United States. The search for the country is no longer the usual assignment to locate several countries on a teacher-prepared list; it becomes a search to satisfy curiosity, a real learning process. Because of the association between the stamp and the country, the location of that country will be remembered by the student for a long time. The location makes the country more than just a name—the stamp has provided a tie between that country and reality.

Stamps often have pictures on them that may be useful in showing some of the characteristics of a country. They may show native animals, mountains, products or typical occupation, a sample of some geographic characteristic of the country. From the standpoint of the geography teacher, it is unfortunate that all stamps do not have such subjects. If the particular object on the stamp is not familiar to the student, he will wonder what it is and why it is pictured on the stamp. Why is there a mountain (Fuji-yama) on some Japanese stamps? Why is there a cacao pod on a stamp from Ecuador? The desire for information created by the stamp is a real desire, not an artificial, teacher-created pressure to learn.

It is more than likely that the textbook will have just as good illustrations as the pictures on the stamps. The pictures in the text

are larger and easier to examine, but the pictures in the textbooks seem to become invisible at times, and the students fail to see them. The stamp demands attention and it may be that the student will find the pictures in the text becoming more meaningful because of the association with a similar picture on a stamp.

Displaying Stamps

Stamps can be mounted in attractive and eyecatching displays; for example, a series of stamps can be arranged without much trouble on a piece of poster board. Labels can be attached to give information about each stamp. This display can show stamps from one or more countries, and can be part of bulletin board arrangement of maps and pictures related to the country or countries being studied. The stamps can be mounted on a large outline map, if several countries are to be represented. The issuing country may be indicated by placing each stamp in the proper place on the map, or the stamps may be arranged around the border of the map and connected to the proper country by lines or strings. The preparation of the outline map, as well as the selection and mounting of the stamps can be done by the students.

The teacher may be able to collect enough stamps of the proper kind to make a representative display showing the products or the natural features of a country. Other pictoral material could be used with such an arrangement. A unit on transportation can very well be illustrated by the many stamps showing examples of means of transport. Not only are there air mail stamps with pictures of planes; there are stamps with trucks, ships, river boats, canals and other modes of travel pictured on them. Of course, a geography teacher would be very interested in stamps with maps on them. Two recent examples of map stamps are the Gadsen Purchase and Soo Canal commemoratives. The National Park series are excellent to use with a unit on conservation. It is likely that a particular stamp or group of stamps will indicate other display uses. It is hoped that both teacher and students will begin to see stamps in relation to geography and to select stamps with a view towards using them as a display.

Sources of Stamps

Most teachers receive only a limited amount of foreign mail, so such a source of stamps would be very inadequate. It is possible

that some of the students have "pen pals" that might furnish a limited supply of foreign stamps. It is also suggested that students may obtain typical issues by correspondence with postal or consular officials of other countries. Such correspondence would not only be a means of obtaining stamps, but would also furnish practice in writing and be valuable as a contribution to international good will. There are a number of companies that sell stamps to collectors, in a variety of selections or assortments. A lack of a personal source of stamps need not be a handicap to a teacher who is interested in using them. The addresses of these companies can be obtained from many magazines or newspapers, for example, *Popular Science, Popular Mechanics, Scholastic* and the *New York Times* all have advertisements of many companies. One company recently advertised in the JOURNAL OF GEOGRAPHY. Variety stores, hobby shops and mail order houses are other commercial sources of stamps.

The cheapest type of assortment is what is usually called a "mission mixture" containing a large number of common, used foreign stamps. There may be a great many duplicates and most of the stamps will still be attached to portions of the envelopes. The duplication is not necessarily undesirable, and the stamps can be removed from the envelopes by a brief immersion in water. Sometimes heavy cancellations may hide a part of the picture on the stamp, but if there are several specimens, one can usually be found with a light cancellation or a cancellation only on a small corner of the stamp. If the picture on the stamp seems to have special significance, it is possible to buy most stamps in an un-used (or mint) condition. Some companies do not handle such mixtures and others only use them as an advertising premium to obtain approval applicants.

It is almost as cheap to buy the stamps in collections, or large numbers of common stamps, removed from the envelopes and with no duplication. Such a collection may cost more per stamp, but the lack of duplication may be an advantage. It must be remembered that bits of strange envelopes on which the stamps are stuck add to the fascination of the mission mixtures.

Most companies sell "packets" or selected assortments of stamps. These assortments may be all from one country or related countries. The cost per stamp will be higher than bulk assortments, but if the teacher is interested in stamps from a specific country or

region, this method of purchase has its advantages. For example, a Latin American packet, containing about 25 representative stamps would probably cost a quarter, and would provide enough stamps for a small class studying the geography of that region.

Many companies send out stamps on approval, giving the customer the advantage of examination before purchase. If the teacher wishes to get stamps of a certain kind, this method of purchase is very convenient, because of the opportunity for careful selection. In examining the stamps on the approval sheets, the teacher may get some very good ideas about using certain stamps. The price of the approvals vary from less than one cent to several dollars. There is one problem connected with this method of purchase, the nuisance of returning the unwanted stamps to the company.

Stamp Catalogs

A few of the larger companies have prepared catalogs that list nearly all the stamps issued thruout the world. From the description of the stamp, the teacher may find certain specimens that will be useful in preparing displays on products, transportation and other series. Most of the companies charge a small sum for their catalogs, but because of the useful information about stamps and stamp collecting, it may be very useful to a teacher who uses stamps to buy a catalog.[1] The United States Post Office has published a book that lists all the stamps issued by our government.[2] This book would be useful in discovering just what commemoratives and other series have been issued, with the hope that they might be useful in teaching geography.

It is not always easy to identify a stamp, particularly one from a country that uses an unfamiliar alphabet, but most of the catalogs have guides which are written to make identification easy. Several of the companies have inexpensive booklets prepared as an aid to identification. If it is impossible to determine the source of a stamp with such helps, it may be that a stamp columnist or a local collector can assist the teacher and the students in locating the origin of the stamp. The local collector can be of much assistance to the teacher who is planning on using stamps. Contact with the collector would not only provide assistance in the use of stamps but would also promote better school-patron relations. The search for infor-

[1] *Standard Postage Stamp Catalog*, published by the Scott Stamp and Coin Company, New York City, New York, is one of the most complete catalogs.

[2] *Postage Stamps of the United States, 1847-1953* (Catalog number P4.10:53), Superintendent of Documents, Washington 25, D.C.

mation about unidentified stamps could be a real experience in letter writing for the students.

The contact with a large number of foreign stamps might result in the teacher or some of the students being bitten by the "stamp bug." There is nothing to be feared with this situation, because stamp collecting has a great many values as a hobby. After all, one of the objectives of modern education is to provide for the wise use of leisure time.

Compared to many other teaching aids, stamps are inexpensive and do not require expensive and elaborate equipment. A few cheap magnifying glasses for examining some of the details of stamps are useful. Stamp hinges, small gummed rectangles of paper, are necessary for mounting the stamps so that they may be removed without injury. Envelopes or small boxes can be used to store the stamps.

SUMMARY

The advantages of using stamps can be summarized as follows: 1) The stamps arouse curiosity, motivating the student to learn more about foreign places. 2) They emphasize the reality of foreign countries. 3) They provide information about the issuing countries. 4) They are cheap, and require no expensive equipment for use. 5) They can be stored without elaborate facilities. 6) They may provide contact with foreign countries and with collectors who are patrons of the school system.

NOTES ON A PROGRAM OF FIELD MAPPING FOR UNDERGRADUATES

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A course in field mapping may be immediately profitable for students and community alike if the class focuses its attention on local problems. Many cities and counties have planning commissions or similar governmental departments which could conceivably make good use of an opportunity to cooperate with the college or university. Detailed land use studies are not only helpful but neecssary for local planning, particularly for satisfactory zoning.

At Stanford University geography majors take the field

mapping course at the end of their senior year, when they presumedly would be at best equipped to grasp the often complex physical-cultural and land type-land use relationships. The original plan was to have the students practice the various techniques of geographic mapping along a strip running from San Francisco Bay to the Pacific Ocean. This, however, was seen to involve the purchase of costly enlarged aerial photographs and several maps, as well as the labor and material necessary to mount photos on chipboard for stability in the field. At some colleges such expenses may not be practical. Furthermore, the work of the students in the strip, chosen to exemplify a maximum of heterogeneity, seemed to be of direct and immediate practical value to the participants in the project alone. For these reasons it was decided that a different approach to adequate instruction in field mapping might be in order.

Because the prospective instructor in the course had taken part in the Puerto Rican Rural Land Classification Program, which was partially under the direction of the insular planning board, the local Santa Clara County Planning Department was the first organization contacted to arrange for the program. Suggestions leading to cooperation and reciprocal benefit were enthusiastically received, and plans were made for setting the program in motion.

In exchange for the student's mapping of present land use in a selected problem area of the county, the Planning Department furnished the following materials for each member of the class:

1) Enlarged prints of aerial photographs (Production and Marketing Administration, 1950) at the scale of 1:7,920. Those parts of these photographs within each team's mapping area were mounted on heavy cardboard, making possible permanent inking while in the field. For further ease of handling, all chipboard mounts were of comparable size.

2) A Koh-I-Noor Rapidograph pen (No. 1 Fine, Koh-I-Noor Pencil Co., Bloomsbury, N.J). This pen, when filled with India ink, is used in much the same fashion as an ordinary fountain pen. It stores enough ink for several afternoons of field mapping and is entirely satisfactory for this job providing manufacturer's directions are followed carefully.

3) A set of property-line base maps, scale 1:7,200.

4) A set of U. S. Geological Survey topographic quadrangles, scale 1:24,000.

5) A base map of the entire area to be mapped by the group, showing transportation routes and delineating boundaries of each team's mapping unit.

By dividing the class of fourteen students into seven teams, accuracy checks of both identification of land use and location of that use on the aerial photograph were made easier, because of dual responsibility. Likewise, the problem of transportation to and from, as well as within, the field was facilitated, as only one car for each team of two workers was necessary.

Present land use was the only data recorded in the field, because soils and land capability classes had been mapped recently. The use of each structure and of each parcel of land larger than lot size was broken down to specific types, resulting in the following classification:

1) Agricultural—specific variety of fruit (prunes, apricots, pears, etc.), field crops, or livestock raised; type of farm buildings.

2) Residential—type of dwelling (single-family, duplex, motel, etc.).

3) Commercial—type of operation (gas station, restaurant, etc.).

4) Industrial—type, according to finished product.

5) Public or quasi-public—specific type.

6) New transportation—routes.

7) Wild Vegetation—range grassland, scrub, wooded.

The survey area was divided into a number of strips of six to ten square miles in area and extending from the floor of the Santa Clara Valley to the crest of the first ridge of the surrounding hill lands, thus providing for each team a maximum variation in slope, soil, and land use. As a team completed the mapping of one strip they moved several miles to another section, further enriching their field experience.

Since land use in itself is largely a job of description, an assignment was made for a term paper, topic of each student's choosing but related to the area he expected to map.

Mapping was graded on the basis of accuracy and efficiency, with emphasis on accuracy, thus not only encouraging the students to do their best work but also providing additional assurance to the planners that accurate information would be available to aid them in determining acceptable zoning boundaries. In view of the success of the cooperative program, it is to be continued for several years.

GEOGRAPHICAL PUBLICATIONS

Clarence F. Jones and Rafael Picó, Ed. **Symposium on the Geography of Puerto Rico.** University of Puerto Rico Press, Río Piedras, P. R., 1955. xxviii and 503 pages with 186 photographs, maps and diagrams. 13 plates in folder, 59 tables, index. $4.50.

This well-printed and useful book describes the landforms and land use in Puerto Rico. It is concerned mainly with rural economy and does not deal with the cities. Only manufacturing establishments connected with Puerto Rico agriculture are included, for example: sugar centrales and pineapple processing plants.

The publication is an outgrowth from the Rural Land Classification Program carried out between 1949 and 1951. The work was under the direction of Clarence F. Jones, G. Donald Hudson and Rafael Picóo. Field work to a total of 2020 man months was done by teams of graduate students in geography. Of these 18 used their field studies for doctoral dissertations. Most of the 18 chapters in the book were prepared by men who actively mapped selected areas in rural Puerto Rico. The results from the program of field mapping are so highly commendable that the plan could well be followed elsewhere.

Puerto Rico has a noteworthy problem in that 2,210,700 people in 1950 were living on its 3421 square miles and were mainly supported by agriculture. This is a population density of 646 persons per square mile of all land, but actually nearly 1700 persons per square mile of cultivated land. The climate is tropical and some lowlands are very productive but mountains, erosion of hill lands, occasional droughts, thin stony soil and other handicaps make tillage impossible in over half of the area. Sugar cane is far in the lead in value of agricultural production. Other export crops include tobacco, pineapples and coffee. Subsistence crops include corn, bananas and many other fruits, yams and sweet potatoes, beans, rice and various vegetables.

Highway construction and irrigation development and introduction of new plants have improved rural conditions since the days of Spanish rule. Land reform laws have led to some division of estates, but sugar remains the principal money crop and much of the fertile lowlands grow cane that is ground in 30 centrales located there. Only five centrales that handle under 8 per cent of the sugar crop are outside of the lowlands.

Type studies were made of all the varied regions of the island and the land use there is described in detail.

Recommendations made for improved use of land in Puerto Rico include fertilizer, new crops or improved species, improved credit and marketing agencies, better rural education, revision of the land tenure system, and expansion of family sized farms.

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Johannes Humlum. **Kultur-Geografisk Atlas, I. Atlas, II Tekstband.** Gyldendalske Boghandel, Nordisk Forlag, Copenhagen, Denmark, 1955. Vol. I, xx and 127 pages with maps, $3.50 and Vol. II, 297 pages with bibliography and index, $5.00 (English edition of Vol. I, **Atlas,** Meiklejohn and Son, Ltd., London, 1955, $2.50).

This two-volume work on economic geography by Johannes Humlum is a multilingual success particularly in the first volume where the legends to the many maps are in Danish, German, French, and English. The world maps on Olaf Kayser's projection and on the scale of 1:225,000,000 are so small that the production of many commodities can be shown only by major areas or countries. The inset maps on a larger scale make possible

a greater refinement in the presentation of the statistical data. Production of agricultural, mineral and other commodities is shown by circular disks in red and black. On many maps the actual areas of production are shown in solid color, in corresponding tints, or are outlined distinctly. On a limited number of maps the distribution of products is shown by dots or some other appropriate symbol. Generally the color registry is good and as a consequence the relatively simple maps are very graphic.

The four languages used in the legends and for other descriptive statements make the atlas particularly useful to those who wish to increase their proficiency in the use of three or four languages important in the field of geography. If the student does not gain linguistic facility, at least he should be able to enlarge and enrich his vocabulary. Candidates for the Ph.D. degree who have not satisfied the language requirement may profit greatly by consulting this atlas.

Volume II consisting of 297 pages of text is entirely in the Danish language but the numerous illustrations consisting of maps, sketches, graphs, and photographs make the volume very useful to the sincere student of geography even tho he does not read Danish. A nine-page bibliography and an index contribute to the usefulness of this important work in economic geography by Professor Humlum.

GUY-HAROLD SMITH

The Ohio State University

Hugh Hammond Bennett, **Elements of Soil Conservation,** 2nd Ed. McGraw-Hill Book Co., Inc., New York, 1955. x and 358 pages with maps, graphs, photographs and bibliography. $3.96.

In this text Dr. Bennett, formerly Chief of the United States Soil Conservation Service, has written a timely revision of his widely known work and brings the reader up to date on all the latest phases of soil conservation. It is a sound, authoritative treatment of the problems and practices dealing with soil erosion. The text has been written in simple, concise language which renders it easy to read and conveys the authors intent in a readily understandable manner.

The book can be readily divided into major parts. The first seven chapters deal with the problem under discussion. The broad aspects of erosion, its extent, effects and how it occurs are all treated in clear, forceful language. Chapter five is devoted specifically to a statistical presentation of the rates of runoff and erosion. The effects of slope, rainfall intensity, types of tillage and vegetative forms are included to make a convincing argument against the ravages of unwise land use practices. The first seven chapters might well be termed an inventory of soil erosion and the research which developed therefrom.

The last sixteen chapters constitute a record of the results of the inventory and research of the Soil Conservation Service during the past twenty years. Here is recorded the measures which are now commonly used to combat soil erosion. The author has been highly selective in the conservation measures and practices which he advocates—all have been tested in the field and found applicable and sound.

A liberal use of carefully selected authenticated pictures adds to student interest. Numerous graphs and maps help to fix areal concepts firmly in mind. A fifteen page bibliography furnishes a valusble and easily-secured list of supplementary pamphlets, and books. Also included is a correlated list of visual aids.

This book is an outstanding text for the student and an invaluable source of reference for the farmer and laymen.

G. DAVID KOCH

Indiana State Teachers College
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Samuel Newton Dicken. **Economic Geography.** D. C. Heath and Company, Boston, 1955. ix and 569 pages with illustrations, tables, maps, references and index. $6.50.

Economic Geography is the successor to *A Regional Economic Geography*, published in 1949. The new edition incorporates many changes which makes it a more usable and valuable volume.

The reorganization of the material has been of major significance to provide a more cohesive text. It is possible to give here only a brief outline of the organizational and content changes. A new chapter (Chapter 4) "The Geographic Background of Production in Other Continents," is a continuation of Chapter 3, "The Geographic Background of Production in the Americas." Chapter 5 treats the products of the seas. Chapters 6 thru 8 are devoted to the forest industries of the world. The next 22 chapters discuss the economy of the agricultural regions of the world. Some of the chapters are topical while others are viewed from the country approach. Five chapters, 31 to 36, treat minerals and water power. The final seven chapters are devoted to manufacturing and trade.

Several new chapters on minerals have been added to this edition. The chapters on trade and transportation have been revised to include new sections. The statistics have been brought up to date using wherever possible the censuses of 1950 or later. Thruout the book are new maps, graphs and photographs.

Professor Dicken has produced a very readable, basic text in economic geography. The ultimate objective of understanding the distribution of world production as seen against the geographic background of the natural and cultural environment and viewed in the perspective of time has been achieved.

E. WILLARD MILLER

The Pennsylvania State University

J. Russell Smith, M. Ogden Phillips and Thomas R. Smith. **Industrial and Commercial Geography.** Fourth ed. Henry Holt and Company, New York, 1955. xiii and 689 pages with illustrations, maps and index. $6.95.

"This is not just a revised edition. If you know the previous edition (1946) you will call this a new book." And if you liked the previous edition you will probably like this one even more.

The dominant theme has been changed from "One World" to "Two Worlds"—the developed (rich) and the underdeveloped (poor) regions. These are separated by a "great chasm," the narrowing of which the authors believe is the "Number 1 problem of humanity"; and, further, that the institution best able to help solve this problem is the United Nations—"the greatest of all our underdeveloped resources."

Other changes have also been made. A new co-author has been added—Thomas R. Smith, son of the senior author. Chapters on agricultural commodities have been returned to the first part of the book. Discussion of trade and transportation has been reduced by about half. Shorter chapters have been obtained by dividing those that were excessively long into two chapters each.

The distinctive touch of J. Russell Smith remains apparent in the writing, particularly in the captions and in certain chapters. His epigrammatic style is delightful except when an occasional epigram deteriorates to journalese.

Nevertheless, most of the writing is direct and clear. And the selection and balance of material show great learning as well as judgment. Factual errors, illogical statements, and inconsistencies are few and perhaps unavoidable in a study as complex as world economic geography.

CLARENCE L. VINGE

Michigan State University

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EDITORIAL NOTES AND NEWS

"Next in importance to freedom and justice is popular education, without which neither justice nor freedom can be permanently maintained."—James A. Garfield

The *Science News Letter* reports that it takes 800,000 gallons of water to grow an acre of cotton.

Have you examined any of the FOA County Series? The copy about Turkey arrived in January, 1955. If you are interested, write to Foreign Operations Administration, Washington, 25, D. C.

According to the Brazilian Press the first oil refinery to operate in the State of Sãn Paulo is at Capuava and has a daily capacity of 20,000 barrels.

EDITORIAL NOTES AND NEWS

The Los Angeles Geographical Society will conduct a tour thru South America, spending six days in Rio de Janeiro for the meetings of the International Geographical Union. The tour will be in charge of Dr. R. A. Kennelly, 2091 Tevis Avenue, Long Beach, California.

The Geography Club of Western Pennsylvania has just issued a special number of its *Bulletin*. This special number is devoted to suggestions for the teaching of geography and should prove very helpful.

Venezuela is building a new steel mill at the confluence of the Orinoco and Caroní rivers. This is only a short distance from the great iron deposits which are now being worked. It is expected that the mill will be in full production by 1959. It is to be built in two stages. "The first is based on an annual production of 300,000 tons, and the second on a yearly production of 421,000 tons." The project is being financed entirely by the Venezuelan government. Coal and limestone will be available from Naricual (Anzoátegui State). It is believed that the coal resources are sufficient for 100 years.

The annual steel capacity of the United States is now 128,863,000 tons. It is interesting to note that ten years ago our rated yearly capacity was 91,890,000 tons. Pennsylvania leads with 35,000,000 tons, followed closely by Ohio with 24,835,000 tons. Indiana ranks third with 15,637,000 tons. Our total annual tonnage provides for more than 1500 pounds of steel per capita.

Lester E. Klimm, Professor of Geography at the University of Pennsylvania, received the Henry Grier Bryant Gold Medal of the Geographical Society of Philadelphia, at the annual dinner of the Society, February 14, 1956. Professor Klimm was the seventh recipient of the award, established in 1933 in memory of Henry Grier Bryant, Arctic explorer and mountain climber, who died in 1932.

According to the United States Bureau of Mines, "the nickeliferous iron ores of Cuba are the largest potential sources of nickel in the world." Nickel ores of Cuba are found in laterites, produced by the weathering of serpentine rock. The soft residue of iron, nickel, cobalt, and chromium ranges principally along the north coast of Oriente Province (Eastern Cuba). In 1952 the World War II nickel-mining community of Nicaro was reactivated and recently another mine was opened at Moa Bay 45 miles east. Cuban nickel ore averages slightly over one per cent pure nickel. Approximately 29 million pounds of nickel were produced in 1954, and nickel, manganese, copper, and chromium are second only to sugar in export value.

Enrollment in American colleges and universities reached an all-time high with the matriculation last fall of 2,500,000 students. More than 25 per cent of our college-age population, the 18 to 21-year olds go to college. This is proportionately five times as many as in England, six times as many as in Germany, and ten times as many as in France.

La Prensa, famous Argentine newspaper confiscated by Ex-President Peron, began publishing again under the editorship of Dr. Alberto Gainza Paz on February 3. As prime public critic of the Peron regime, *La Prensa* was seized in 1951 and Dr. Paz escaped into exile, spending much of his time in New York.

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In the Second Regular Term, 21 July-24 August: "Fundamentals of Human Geography," "Geography of Rimland Asia," "Special Problems in Geography (undergraduate level)," "Research in Geography (graduate level)," and "Field Research in Geology (graduate level)."

Dr. William F. Jenks will direct the studies in Geology in both terms. Mr. Jordan A. Hodgkins will provide the instruction and direct the studies in Geography in the First Regular Term; Dr. Howard F. Hirt of the University of Missouri and Mr. Laurence G. Wolf, in the Second Regular Term.

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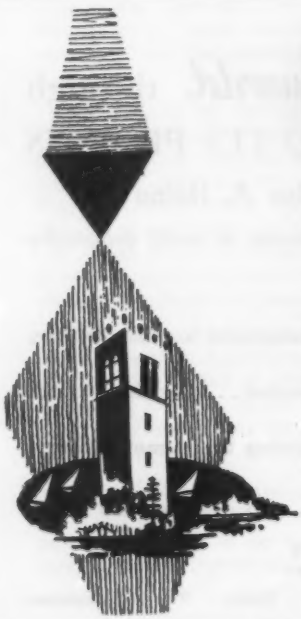

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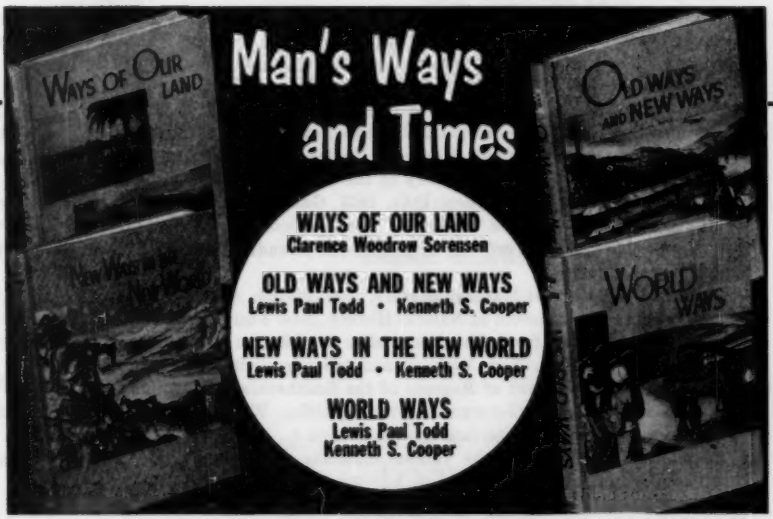
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GEOGRAPHICAL MATERIALS RECEIVED

George W. and Viola Hoffman. **Life in Europe: Switzerland.** The Fideler Company, Grand Rapids, Michigan, 1955. 160 pages with many illustrations, glossary and index. $3.28.

This book for elementary school students is one in a series of Life in Europe.

North Central Association of Colleges and Secondary Schools. **Your Life Plans and the Armed Forces** plus a **Teacher's Handbook.** American Council on Education, Washington, D.C., 1955. Text, x and 149 pages with illustrations and bibliography; handbook, v and 23 pages with bibliography. Text, $2.00; handbook, 60 cents.

To assist young men and women to plan for themselves and their nation.

August Pi Suñer. **Classics of Biology.** Translated from Spanish by Charles M. Stern. Philosophical Library, New York, 1955. x and 337 pages with bibliography and index. $7.50.

This survey gives the high points of progress in the study of biology. There is a chapter on Geography and Palaeontology.

William H. Dodge. **Transportation in the Wisconsin Economy.** Wisconsin Commerce Reports, Vol. IV, No. 4 (August, 1955), Bureau of Business Research and Service, University of Wisconsin, Madison. 103 pages with tables and maps. $1.15.

This Wisconsin Commerce Report covers the economic and locational structure of Wisconsin, the pattern of Wisconsin's freight traffic and Wisconsin's transportation system.

Ruby M. Harris. Living in Western and Northern Europe series of four filmstrips: **Living in the British Isles** (64 frames), **Living in France** (62 frames), **Living in the Netherlands, Belgium, and Luxembourg** (55 frames) and **Living in Scandinavian Europe** (64 frames). Society for Visual Education, Chicago, Illinois. Series $19.00, each filmstrip, $6.00.

L. Dudley Stamp. **An Intermediate Commercial Geography.** Part II. The Economic Geography of the Leading Countries. Longmans, Green and Co., New York, 1955. 584 pages with illustrations, maps, examination questions and index. $5.00.

This eighth edition follows the pattern of the original book and includes latest information available to bring it up-to-date.

Reports of a Special Subcommittee on Territorial and Insular Affairs of the Committee on Interior and Insular Affairs, House of Representatives. **Guam, Mariana Islands; American Samoa and Trust Territory of the Pacific Islands.** United States Government Printing Office, Washington, D.C., 1955. **Guam, Mariana Islands** (Committee Print No. 3) v and 66 pages. **American Samoa** (Committee Print No. 4) vi and 35 pages, with chart. **Trust Territory of the Pacific Islands** (Committee Print No. 5) vi and 77 pages with map.

The American Museum of Natural History. Eighty-Sixth Annual Report of the President. The American Museum of Natural History, New York, New York, 1955. 84 pages.

The President's Review from The Rockefeller Foundation Annual Report, 1954. The Rockefeller Foundation, New York. iii and 145 pages with illustrations.

Annual Report of the Board of Regents of the Smithsonian Institution. 1954. Publication 4190, United States Government Printing Office, Washington, D.C., 1955. ix and 455 pages with illustrations, photographs and index.

In addition to reports of the various branches of the Institution, there are nine articles covering diverse subjects.

American Heritage, Vol. VI, No. 6, October, 1955. American Heritage Publishing Co., New York. 112 pages with illustrations. $12.00 for one year—six book-issues.

J. Douglas Hill and Richard S. Ladd. **Treasure Maps in the Library of Congress.** Card Division, Library of Congress, Washington 25, D.C. 24 pages with index. 25 cents.

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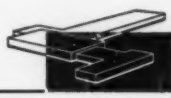

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